

Toxicology studies of plant products

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Herbal medicines are a multi-billion dollar industry in the United States with more than 1500 botanicals sold as dietary supplements or ethnic traditional medicines. Herbal dietary supplements are not subject to Food and Drug Administration (FDA) pre-market approval to assure their safety or efficacy. Toxicological research involving laboratory animals is necessary to ensure and enhance human and animal health and protection of the environment. The WHO has recognized the contribution and value of the herbal medicines used by a large segment of world's population. Toxicology is the study of how chemical substances interact with living systems and affect normal processes, and the use of this information to predict safe exposure levels. Toxicological research and testing helps us to live safely and to derive benefit from natural substances while avoiding harm. Toxicologists are involved in the evaluation of household products, medicines and the effects of incidental and occupational exposure to natural and manufactured substances. Toxicology also helps us develop the best treatments in accidental over exposure. Toxicologists know that no substance is risk-free. Some doses actually have beneficial effects, as we all know from use of medicines. But increasing exposure to most substances will, at some point, cause harmful effects. Substances are considered toxic at that level. For example, digitalis is a plant product that has been used with great benefit to treat heart irregularities, but too large a dose will cause death. Oxygen provides another example of how increasing the dose can turn a safe compound into a toxic one.

Biography

A. Thangathirupathi has completed Ph.D. at the age of 40 years from The Tamil Nadu Dr. MGR Medical University, Chennai, India. At present, he is the principal of Sankaralingam Bhuvanewari College of Pharmacy, Sivakasi, Tamil Nadu, a premier institute for pharmacy education in India. He has published more than 32 papers in reputed journals and serving as member in various professional societies such as CPCSEA, IPGA, APTI and IPS. He has received the Best Teacher award from The Tamil Nadu Dr. MGR Medical University, Chennai on 24 Nov 2012 for exemplary contribution to the profession of pharmacy.

Herbal products in India: Opportunities and challenges ahead

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Herbal products as medicines, cosmetics and health drinks are making a strong mark across the globe. The health benefits and long-established use of herbal products is an attractive option in times when many consumers mistrust the "undesirable" effects of conventional OTC drugs, or cannot afford their high prices, especially in developing country like India. The use of herbals as pharmaceuticals, cosmeceuticals and nutraceuticals plants for their health-promoting and healing properties is increasing. Lifestyle modification, stress reduction, exercise, meditation, dietary changes, and many other traditional naturopathic therapies by using herbals are becoming much more popular in India. The new markets are being driven by improved health and quality of life and renewed concern about availability of pharmaceutical, cosmeceutical and nutraceutical based products.

According to market reports, Indian herbal market is registering an extremely significant growth and was likely to reach Rs. 14,500 crore (Rs. 145,000 million) by 2012 and exports to Rs. 9,000 crore (Rs. 90,000 million) with a growth rate 20% and 25% respectively. Though the herbal market is showing good record, there are problems associated with herbal products like non-satisfactory quality control, lack of regulations, misconceptions about safety, dangerous self-medication, and adulterated or mislabeled products. In near future, the herbal plants would continue to provide new chemical entities (lead molecules) for the development of drugs against various diseases. At the same time, there is need of more clinical research studies to support safety and efficacy of these herbal products.